HortiMED Towards circular horticulture
Closing the loop on Mediterranean greenhouses

How HortiMED can contribute to cope with covid-19?

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21/07/2020

PRIMA
PARTNERSHIP FOR RESEARCH AND INNOVATION IN THE MEDITERRANEAN AREA

HortiMED Project (Grant Number 1915) is part of the PRIMA programme supported by the European Union

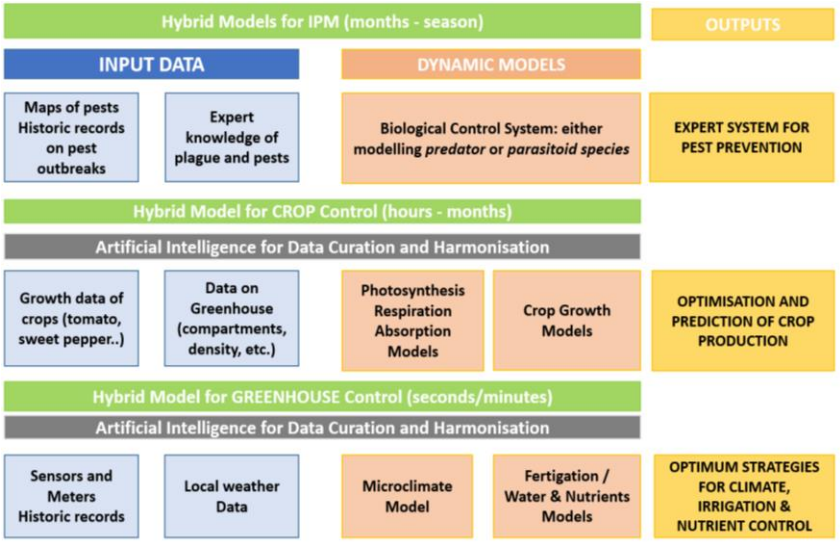
HORTIMED MAIN OBJECTIVE

Overall objective: To provide the Mediterranean horticultural community with **innovative tools to enable resource efficient year round greenhouse cultivation** by harnessing the potential of both simple and advanced technologies for **smart nutrient, irrigation & climate control, and integrated pest management** taking into account their feasibility and cost-effectiveness at individual greenhouse level.

HortiMED aims to **improve resource efficiency & increase circularity in Mediterranean greenhouses** through:

1. Novel tools assisting farmers to improve greenhouse management by integrating sensors, smart algorithms, efficient control procedures and incorporating valuable farmers' experience through Artificial Intelligence-AI techniques into **an easy to use Decision Support System-DSS**
2. Agro-ecological technologies and services, namely **aquaponics and bio-based pest control**, to further improve the sustainability of Mediterranean horticultural systems

HORTIMED-ADDED VALUE / INNOVATIONS



INNOVATIVE AI-POWERED DSS

 # Hybrid models that combine dynamic modelling with AI techniques for the intelligent determination of set points

 # Multilayer hierarchical control architecture to deal with the different time scales of greenhouse dynamics

 # Internet of Things-IoT to integrate information from different sources

INTEGRATED MULTITROPHIC AQUAPONICS-IMTA

HortiMED will **combine Integrated MultiTrophic Aquaculture** (farming of aquaculture species from different trophic levels with complementary ecosystem functions allowing one's species' uneaten feed & wastes, nutrients & by-products to be recaptured and converted into fertilizer, feed & energy for the other species) **with horticultural hydroponic production** (converting the excretion of farmed fish into high value products for plants).

ENVIRONMENTALLY FRIENDLY INTEGRATED PEST MANAGEMENT

Use of natural / Microbial pesticides / Biochemical pesticides

HORTIMED: COVID-19 CRISIS

Covid-19 short-term outlook

Logistic bottlenecks due to delays and disruptions to transport and logistics services
- Restricted market access / Longer transit of perishable products
- Limited access to inputs (e.g. interruptions to fertiliser production by some suppliers)

Labour shortages particularly for peak seasonal labour demand or labour-intensive production.

How HortiMED can contribute

1-Greenhouse automation and remote control→ HortiMED tools will contribute to **minimize the need of physical visits to the greenhouse** by allowing remote access and operation of key greenhouse daily operations (irrigation, climate management and fertilization).

2-Harvest yield prediction → HortiMED will implement AI to forecast harvest yield allowing to **better plan labour force** requirements and **logistics for improved & faster market access**.

3-Resource efficiency & aquaponics → HortiMED approach based on **resource efficiency & circularity will minimize the dependency on agro inputs**. HortiMED will combine hydroponic with IMTA, based on the farming of aquaculture species from different trophic levels with complementary ecosystem functions allowing one's species' uneaten feed & wastes, nutrients & by-products to be recaptured and converted into fertilizer, feed & energy for the other species.

THANK YOU!

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Merci Gracias

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